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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/604,740	08/13/2003	William Randolph Stowell	124251	1739
31838	7590	03/16/2005	EXAMINER	
HASSE GUTTAG & NESBITT LLC 7550 CENTRAL PARK BLVD. MASON, OH 45040			CARRILLO, BIBI SHARIDAN	
			ART UNIT	PAPER NUMBER
			1746	

DATE MAILED: 03/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	10/604,740		STOWELL ET AL.	
	Examiner		Art Unit	
	Sharidan Carrillo		1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 17-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-20 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>12312003</u> . | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-16, drawn to a method of removing metal oxide, classified in class 134, subclass 1.1.
 - II. Claims 17-20, drawn to an apparatus, classified in class 118, subclass 620.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus can be used to practice another and materially different process such as coating.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Daniel Nesbitt on 3/9/05 a provisional election was made with traverse to prosecute the invention of Group I, claims 1-16. Affirmation of this election must be made by applicant in replying to this Office action. Claims 17-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for gas turbine components, does not reasonably provide enablement for any substrate. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

The claims embrace an invention which contains any known substrate, which could/can be selected from literally thousands. It does not appear feasible that any known substrate would function in the present invention. Further, for one skilled in the art to reproduce the present invention (which must be possible, if the specification is adequate), there would clearly be undue experimentation to do so in an attempt to figure out which substrates work and which ones do not. Additionally, the entire specification is based on a gas turbine component. The specification provides no support for cleaning other types of substrates.

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8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 15 are indefinite because the preamble recites removing a metal oxide, however, there is not positive step of removing the metal oxide. Step 4 of claims 1 and 5 are indefinite because it is unclear what "time is sufficient" to reduce the metal oxide. Additionally, what is the metal oxide reduced to? Step 3 of claim 1 is indefinite because it is unclear what is meant by a "reductive plasma". Claim 3 is indefinite because it is unclear whether "an metal oxide" is the same as the metal oxide recited in claim 1. Claim 4 is indefinite because it is unclear what is considered as a "sufficient vacuum". Claims 4-5, 9-10, and 12 are indefinite because it is unclear what is meant by "metal-stable H₃". Claim 12 is indefinite because it is unclear whether the percentage is weight or volume percent. Claims 11 and 15 are indefinite because it is unclear the structural relationship between the plasma source and the electrode. Claim 13 is indefinite because "the plasma generator" lacks positive antecedent basis".

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

13. Claims 1-2, 4-5, 7, 9, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dopper (US2001/0055653).

Dopper teaches a method of removing oxide from a gas turbine blade 1 by directing a plasma 21 towards the substrate surface, as illustrated in Fig. 4 (paragraphs 11, 20, 55-57). In reference to an alloy surface, refer to paragraph 42. In reference to claims 2 and 7, refer to paragraph 20, 54, 56-57. In reference to claim 4, refer to

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paragraph 54. In reference to claim 5, refer to paragraph 56. In reference to claim 9, refer to Fig. 4. In reference to claim 13, refer to paragraphs 38 and 55.

Dopper teaches removing oxides, but fails to teach removing metal oxides. However, it would have been obvious to a person of ordinary skill in the art to remove metal oxides since Dopper provides a general teaching of removing oxides and other contaminants, which would also include metal oxides. Additionally, it is notoriously well known in the art to use plasma to remove metal oxides from substrate surfaces (3852061, 2001/0050265, 3651136).

14. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dopper (US2001/0055653), as applied to claims 1-2, 4-5, 7, 9, and 13 as described in paragraph 13 above, and further in view of Restall et al. (4698130).

Dopper fails to teach the limitations of claim 3. Restall et al. teach that it is conventional for turbine blades to incur damage by cracking. In col. 1, lines 15-25, Restall et al. teach that blades are prone to oxide contamination and further teaches the desire to remove the contaminants from cracks found in the turbine blades. Restall further teaches the need to provide a cleaning process which penetrates the cracks in order to effectively remove contaminants therefrom. It would have been obvious to a person of ordinary skill in the art to have modified the method of Dopper to include the turbine blade comprising crevices having contaminants therein since Restall teaches that during normal use, the components are routinely found to have incurred damage to a degree which requires repair provided that surface contamination from the crevices are removed.

15. Claim 6, 8, 10-11, and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dopper (US2001/0055653), as applied to claims 1-2, 4-5, 7, 9, and 13 as described in paragraph 13 above, and further in view of Gruner (4596718).

Dopper teaches the invention substantially as claimed with the exception of the low pressure within the chamber and the apparatus limitations as recited in claims 10-11 and 15. Gruner teaches a vacuum plasma apparatus as illustrated in Fig. 1, which is used for cleaning a plurality of turbine blades 31. Fig. 1 teaches a discharge nozzle, a plasma source 13, electrodes 10, 11 and a power supply 20 for generating an arc 12 of ionized gas (col. 3, lines 5-46) used for cleaning turbine parts (col. 7, lines 7-35, col. 8, claim 9). In reference to the pressure of the vacuum chamber refer to col. 5, lines 15-30, col. 3, lines 7-10). It would have been obvious to a person of ordinary skill in the art to have modified the method of Dopper to include the plasma torch of Gruner, for purposes of performing the same function of removing contaminants from the surface of turbine blades. In reference to claim 16, refer to paragraphs 55 and 38 of Dopper.

16. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dopper (US2001/0055653), as applied to claims 1-2, 4-5, 7, 9, and 13 as described in paragraph 13 above, and further in view of Cohen et al. (US2001/0050265).

Dopper teaches the invention substantially as claimed with the exception of the limitations of claim 12. Cohen et al. teach the removal of metal oxides from substrate surfaces using conventional process gases comprising 5% or less hydrogen premixed with an inert gas (paragraph 12).

It would have been obvious to a person of ordinary skill in the art to have

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modified the method of Dopper to include hydrogen having a concentration of less than 5%, premixed with an inert gas, which are conventionally used, as taught by Cohen, for generating a plasma used in the reduction of metal oxide from substrate surfaces.

17. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dopper (US2001/0055653) in view of Cohen et al. (US2001/0050265), as applied to claim 12 as described in paragraph 16 above, and further in view of Venus et al. (3851136).

Dopper in view of Cohen fails to teach the limitations of claim 14. Venus teaches in Fig. 1, generating a plasma through a magnetic channel for purposes of accelerating the electrons used in the reduction of metal oxides. It would have been within the level of the skilled artisan to have modified the method of Dopper to include a magnetic field channel, as taught by Venus, for purposes of transmitting the flow of electrons within the plasma for use in the reduction of metal oxides.

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Smith, Wulff, teaches generating a plasma. Meier teaches repairing a turbine engine. Eaton et al. and Matarese teach a coating process of a metal alloy. Aston et al. teach an arc channel. Rickerby teaches a coated article. Li et al., Ikeda, Sanki et al. and Kool et al. teach oxide removal.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharidan Carrillo whose telephone number is 571-272-1297. The examiner can normally be reached on Monday-Friday, 6:00a.m-2:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on 571-272-1414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sharidan Carrillo
Primary Examiner
Art Unit 1746

bsc



SHARIDAN CARRILLO
PRIMARY EXAMINER